

OESS Release 1.1.0

Eric Boyd, Edward Balas, AJ Ragusa



Significant Changes

● Grouped Email Notifications

- reduces email volumes allowing you to concentrate on triggering event

● Visibility into foreign circuits that land on your ports

- lets you see all VLANs on your ports

● Workgroup ACLs

- lets you control who can create VLANs on your ports

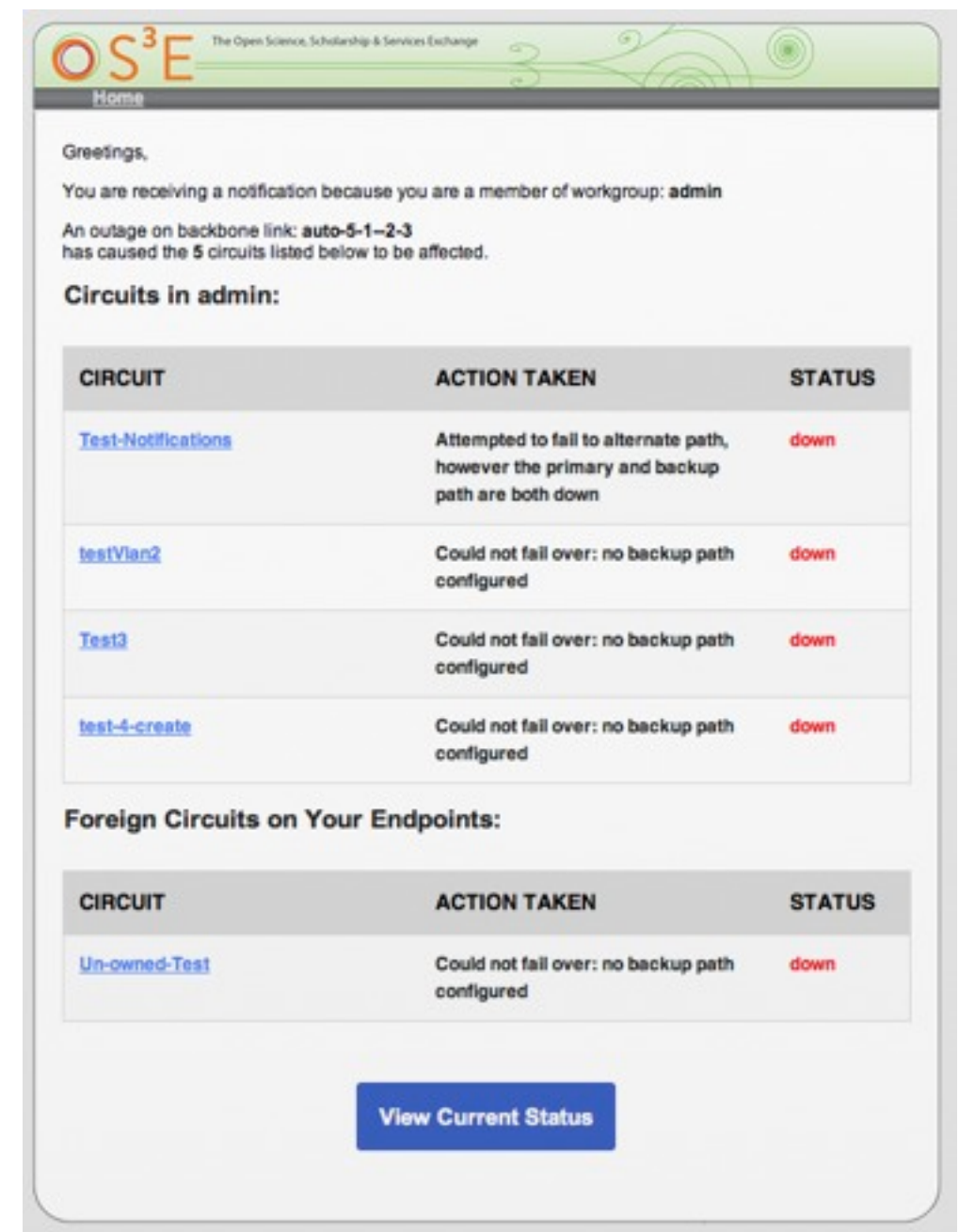
Email Notifications

◎ Old: 1 email per VLAN per event

- plain text
- high volume for larger WGs

◎ New: 1 email per event per WG

- HTML with links to app
- reduced spamming
- organized by triggering event



OS³E The Open Science, Scholarship & Services Exchange

Home

Greetings,

You are receiving a notification because you are a member of workgroup: **admin**

An outage on backbone link: **auto-5-1-2-3** has caused the 5 circuits listed below to be affected.

Circuits in admin:


CIRCUIT	ACTION TAKEN	STATUS
Test-Notifications	Attempted to fail to alternate path, however the primary and backup path are both down	down
testVlan2	Could not fail over: no backup path configured	down
Test13	Could not fail over: no backup path configured	down
test-4-create	Could not fail over: no backup path configured	down

Foreign Circuits on Your Endpoints:

CIRCUIT	ACTION TAKEN	STATUS
Un-owned-Test	Could not fail over: no backup path configured	down

[View Current Status](#)

Source of Outage

The Open Science, Scholarship & Services Exchange

Home

Greetings,

You are receiving a notification because you are a member of workgroup: **admin**

An outage on backbone link: **auto-5-1-2-3** has caused the **5** circuits listed below to be affected.

Circuits in admin:

CIRCUIT	ACTION TAKEN	STATUS
Test-Notifications	Attempted to fail to alternate path, however the primary and backup path are both down	down
testVlan2	Could not fail over: no backup path configured	down
Test3	Could not fail over: no backup path configured	down
test-4-create	Could not fail over: no backup path configured	down

Foreign Circuits on Your Endpoints:

CIRCUIT	ACTION TAKEN	STATUS
Un-owned-Test	Could not fail over: no backup path configured	down

View Current Status

Greetings,

You are receiving a notification because you are a member of workgroup: **admin**

An outage on backbone link: **auto-5-1-2-3**
has caused the **5** circuits listed below to be affected.

Circuits in admin:

CIRCUIT	ACTION TAKEN	STATUS
Test-Notifications	Attempted to fail to alternate path, however the primary and backup path are both down	down
testVlan2	Could not fail over: no backup path configured	down
Test3	Could not fail over: no backup path configured	down
test-4-create	Could not fail over: no backup path configured	down

Foreign Circuits on Your Endpoints:

CIRCUIT	ACTION TAKEN	STATUS
Un-owned-Test	Could not fail over: no backup path configured	down


[View Current Status](#)

Link to UI for each
Impacted VLAN

Shows status after
restoration

Affected Foreign VLANs

(anything landing on your ports)

 The Open Science, Scholarship & Services Exchange

Home

Greetings,

You are receiving a notification because you are a member of workgroup: **admin**

An outage on backbone link: **auto-5-1-2-3**
has caused the **5** circuits listed below to be affected.

Circuits in admin:

CIRCUIT	ACTION TAKEN	STATUS
Test-Notifications	Attempted to fail to alternate path, however the primary and backup path are both down	down
testVlan2	Could not fail over: no backup path configured	down
Test3	Could not fail over: no backup path configured	down
test-4-create	Could not fail over: no backup path configured	down

Foreign Circuits on Your Endpoints:

CIRCUIT	ACTION TAKEN	STATUS
Un-owned-Test	Could not fail over: no backup path configured	down

View Current Status

Monday, October 21, 13

Foreign Circuit Visibility

© Workgroups>Home>Active VLANs

OS³E The Open Science, Scholarship & Services Exchange

Workgroups > Home Workgroup: Indiana GigaPOP

Active VLANs Network Status Available Resources Users Actions ACL

Search: With Endpoints On: Path Traverses:

Description	Endpoints	Owned By
[TR-CPS] Indiana Gigapop	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
Indiana Gigapop R&E	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
[CPS] Indiana Gigapop CPS-IPv6	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
[LHCONE] Indiana Gigapop	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
ING TEST	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
XD-FG-3210-IU-3117	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.star.net.internet2.edu - e15/5	XSEDE
XD-FG-3217-PURDUE-2507	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.star.net.internet2.edu - e15/5	XSEDE
XD-IU-3114-TACC-2051	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.denv.net.internet2.edu - e15/4	XSEDE
XD-IU-3113-SDSC-3120	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.losa.net.internet2.edu - e15/6	XSEDE
XD-IU-3112-PSC-4094	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.clev.net.internet2.edu - e15/5	XSEDE

<< first < prev 1 2 next > last >>

Total Circuits: 19

VLANs Owned by
Workgroup Shown in
Black

Search:

With Endpoints On:

Path Traverses:

Description	Endpoints	Owned By
[TR-CPS] Indiana Gigapop	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
Indiana Gigapop R&E	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
[CPS] Indiana Gigapop CPS-IPv6	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
[LHCONE] Indiana Gigapop	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
ING TEST	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
<i>XD-FG-3210-IU-3117</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.star.net.internet2.edu - e15/5</i>	<i>XSEDE</i>
<i>XD-FG-3217-PURDUE-2507</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.star.net.internet2.edu - e15/5</i>	<i>XSEDE</i>
<i>XD-IU-3114-TACC-2051</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.denv.net.internet2.edu - e15/4</i>	<i>XSEDE</i>
<i>XD-IU-3113-SDSC-3120</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.losa.net.internet2.edu - e15/6</i>	<i>XSEDE</i>
<i>XD-IU-3112-PSC-4094</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.clev.net.internet2.edu - e15/5</i>	<i>XSEDE</i>

<< first < prev 1 2 next > last >>

Total Circuits: 19

Search:

With Endpoints On:

Path Traverses:

Description	Endpoints	Owned By
[TR-CPS] Indiana Gigapop	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
Indiana Gigapop R&E	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
[CPS] Indiana Gigapop CPS	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
[LHCONE] Indiana Gigapop	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
ING TEST	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
<i>XD-FG-3210-IU-3117</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.star.net.internet2.edu - e15/5</i>	<i>XSEDE</i>
<i>XD-FG-3217-PURDUE-2507</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.star.net.internet2.edu - e15/5</i>	<i>XSEDE</i>
<i>XD-IU-3114-TACC-2051</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.denv.net.internet2.edu - e15/4</i>	<i>XSEDE</i>
<i>XD-IU-3113-SDSC-3120</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.losa.net.internet2.edu - e15/6</i>	<i>XSEDE</i>
<i>XD-IU-3112-PSC-4094</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.clev.net.internet2.edu - e15/5</i>	<i>XSEDE</i>

Foreign VLANs in
Grey

<< first < prev 1 2 next > last >>

Total Circuits: 19

VLAN Owner on right

Search:

Select Nodes

Select Nodes

Description		Owned By
[TR-CPS] Indiana Gigapop	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
Indiana Gigapop R&E	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
[CPS] Indiana Gigapop CPS-IPv6	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
[LHCONE] Indiana Gigapop	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
ING TEST	sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.chic.net.internet2.edu - e3/1	Indiana GigaPOP
<i>XD-FG-3210-IU-3117</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.star.net.internet2.edu - e15/5</i>	<i>XSEDE</i>
<i>XD-FG-3217-PURDUE-2507</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.star.net.internet2.edu - e15/5</i>	<i>XSEDE</i>
<i>XD-IU-3114-TACC-2051</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.denv.net.internet2.edu - e15/4</i>	<i>XSEDE</i>
<i>XD-IU-3113-SDSC-3120</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.losa.net.internet2.edu - e15/6</i>	<i>XSEDE</i>
<i>XD-IU-3112-PSC-4094</i>	<i>sdn-sw.chic.net.internet2.edu - e1/2 sdn-sw.clev.net.internet2.edu - e15/5</i>	<i>XSEDE</i>

<< first < prev 1 2 next > last >>

Total Circuits: 19

Workgroup ACLs

⦿ Problem: hard to collaborate across Workgroups in some cases

- access control policy defined by system admin
- policy lacked granularity: per port vs per port / VLAN tag

⦿ Fix: we added the Workgroup ACL feature

- Workgroups can define access policy for ***their*** ports
- policy is now at port ***and*** tag level
- many cases no longer involve contacting the NOC

Ports belong to a Workgroup

- Every port now has an explicit owner
- Workgroup>Home>Available Resources

The screenshot displays the OS³E (The Open Science, Scholarship & Services Exchange) web interface. The top navigation bar includes the OS³E logo, the tagline "The Open Science, Scholarship & Services Exchange", and links for "Documentation" and "Feedback". Below this, a breadcrumb trail shows "Workgroups > Home" and the current workgroup is identified as "Indiana GigaPOP".

The main content area features a tabbed interface with the following tabs: "Active VLANs", "Network Status", "Available Resources" (which is currently selected), "Users", "Actions", and "ACL".

Under the "Available Resources" tab, there is a table with the following data:

Node	Interface	Description	VLAN Range	Owner
sdn-sw.chic.net.internet2.edu	e1/2	I2-S08251 Indiana UGigapop	untagged,1-4095	Yes
sdn-sw.chic.net.internet2.edu	e3/1	rtr.chic, et-10/0/0	101-103,211,2000	No

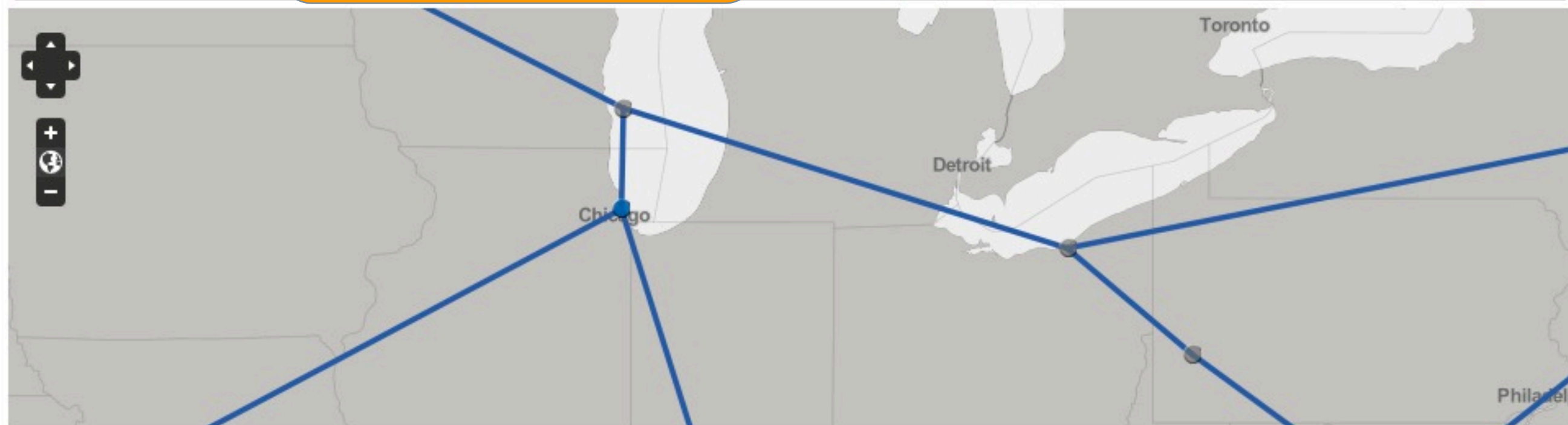
Below the table, there is a map of the United States showing network connections. Blue lines represent network links between various locations, with labels for "Chicago", "Detroit", and "Toronto". A navigation control on the left side of the map includes a crosshair and zoom in/out buttons.

[Active VLANS](#)
[Network Status](#)
[Available Resources](#)
[Users](#)
[Actions](#)
[ACL](#)

Available Resources

Node	Interface	Description	VLAN Range	Owned
sdn-sw.chic.net.internet2.edu	e1/2	I2-S08251 Indiana UGigapop	untagged,1-4095	Yes
sdn-sw.chic.net.internet2.edu	e3/1	rtr.chic, et-10/0/0	101-103,211,2000	No

Shows the tag range
current WG can use

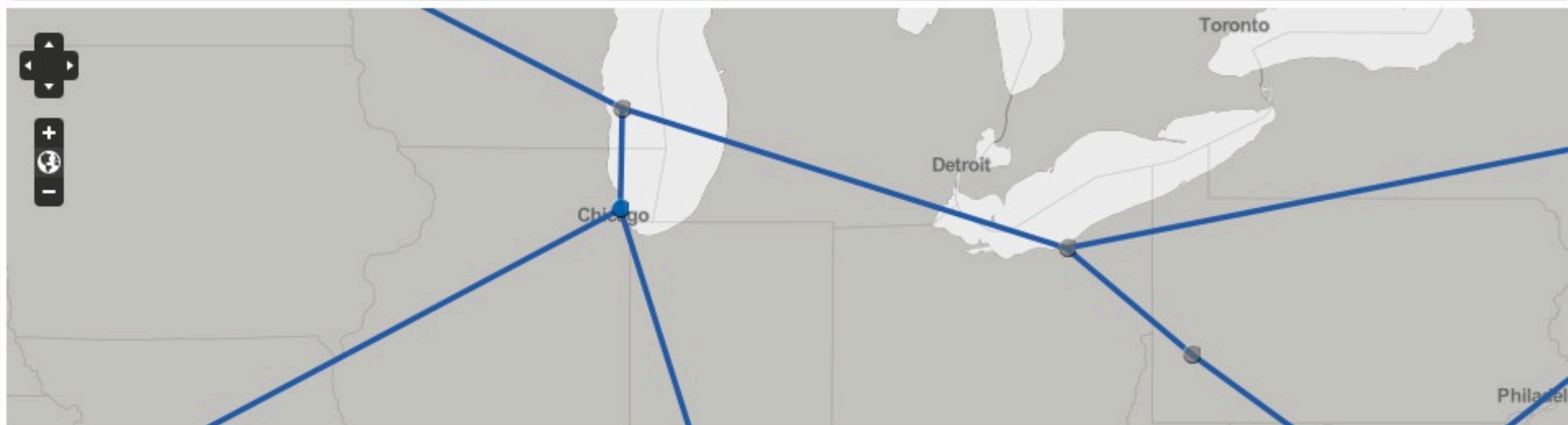


[Active VLANS](#)[Network Status](#)[Available Resources](#)[Users](#)[Actions](#)[ACL](#)

Available Resources

Node	Interface	Description	VLAN Range	Owned
sdn-sw.chic.net.internet2.edu	e1/2	I2-S08251 Indiana UGigapop	untagged,1-4095	Yes
sdn-sw.chic.net.internet2.edu	e3/1	rtr.chic, et-10/0/0	101-103,211,2000	No

Shows if *current* WG owns and thus controls the policy for this port



Defining Access Control Policy

- Workgroups>Home>ACL
- defines who can use a tag on your port

The screenshot shows the OS³E web interface. The top navigation bar includes the OS³E logo, the text 'The Open Science, Scholarship & Services Exchange', and a 'Documentation' link. Below this, a breadcrumb trail reads 'Workgroups > Home'. The main content area has a tabbed interface with tabs for 'Active VLANs', 'Network Status', 'Available Resources', 'Users', 'Actions', and 'ACL'. The 'ACL' tab is selected. Under the 'ACL' tab, there is a section 'Interfaces owned by this Workgroup' with a table showing 'Node' and 'Interface'. The selected node is 'sdn-sw.chic.net.internet2.edu' and the interface is 'e1/2'. Below this is a table titled 'Interface ACL' with columns: 'Workgroup', 'Permission', 'VLAN Range', and 'Notes'. The table lists several workgroups with 'allow' permissions and a range of 'untagged, 1-4095', all generated by an automated migration script. At the bottom of the table are buttons for 'Add ACL' and 'Enable Reordering'.

Workgroup	Permission	VLAN Range	Notes
GRNOC	allow	untagged, 1-4095	generated by automated migration script
Indiana GigaPOP	allow	untagged, 1-4095	generated by automated migration script
SC12 Indiana	allow	untagged, 1-4095	generated by automated migration script
TIP (JT) Demo - Delete after Jan/2013	allow	untagged, 1-4095	generated by automated migration script
XSEDE	allow	untagged, 1-4095	generated by automated migration script
GrantWorkgroup1	allow	untagged, 1-4095	generated by automated migration script
All	deny	untagged, 1-4095	generated by automated migration script

Active VLANs Network Status Available Resources Users Actions **ACL**

Interfaces owned by this Workgroup

Node	Interface
sdn-sw.chic.net.internet2.edu	e1/2

<< first < prev **1** next > last >>

Interface ACL

Workgroup	Permission	VLAN Range	Notes
GRNOC	allow	untagged, 1-4095	generated by automated migration script
Indiana GigaPOP	allow	untagged, 1-4095	generated by automated migration script
SC12 Indiana	allow	untagged, 1-4095	generated by automated migration script
TIP (JT) Demo - Delete after Jan/2013	allow	untagged, 1-4095	generated by automated migration script
XSEDE	allow	untagged, 1-4095	generated by automated migration script
GrantWorkgroup1	allow	untagged, 1-4095	generated by automated migration script
All	deny	untagged, 1-4095	generated by automated migration script

Add ACL

Enable Reordering

Clickable list of ports
your WG owns

ACL for selected Interface

Active VLANs Network Status Available Resources Users Actions **ACL**

Interfaces owned by this Workgroup

Node	Interface
sdn-sw.chic.net.internet2.edu	e1/2

<< first < prev **1** next > last >>

Interface ACL

Workgroup	Permission	VLAN Range	Notes
GRNOC	allow	untagged, 1-4095	generated by automated migration script
Indiana GigaPOP	allow	untagged, 1-4095	generated by automated migration script
SC12 Indiana	allow	untagged, 1-4095	generated by automated migration script
TIP (JT) Demo - Delete after Jan/2013	allow	untagged, 1-4095	generated by automated migration script
XSEDE	allow	untagged, 1-4095	generated by automated migration script
GrantWorkgroup1	allow	untagged, 1-4095	generated by automated migration script
All	deny	untagged, 1-4095	generated by automated migration script

Add ACL

Enable Reordering

Interfaces owned by this Workgroup

Node	Interface
sdn-sw.chic.net.internet2.edu	e1/2

<< first < prev 1 next > last >>

Interface ACL

Workgroup	Permission	VLAN Range	Notes
GRNOC	allow	untagged, 1-4095	generated by automated migration script
Indiana GigaPOP	allow	untagged, 1-4095	generated by automated migration script
SC12 Indiana	allow	untagged, 1-4095	generated by automated migration script
TIP (JT) Demo - Delete after Jan/2013	allow	untagged, 1-4095	generated by automated migration script
XSEDE	allow	untagged, 1-4095	generated by automated migration script
GrantWorkgroup1	allow	untagged, 1-4095	generated by automated migration script
All	deny	untagged, 1-4095	generated by automated migration script

Add ACL

Enable Reordering

All WG== any.
This is a default deny policy rule.

These rules were auto-generated based on legacy policy

1. Click to add policy

Interface ACL

Workgroup	Permission
GRNOC	allow
XSEDE	allow
All	deny

Add ACL Enable Reordering

Add Interface ACL

Workgroup: Ed Net

Permission: Allow

VLAN Range: 13

Notes: I've been in my mind,
it's such a fine line
That keeps me searching
for a heart of gold

Save Cancel

3. Set evaluation order with drag / drop

2. Define a rule

Policy Migration

◎ Your port access policy does not change

- maintain existing policy when migrating to 1.1.0
- existing port level access maps access to every tag on that port

◎ you decide if or when you want to change your port access policy

- customer driven
- no Internet2 requirement for how you maintain your port policy
- we can provide guidance if you are unsure of best approach for you

Connector Workgroups

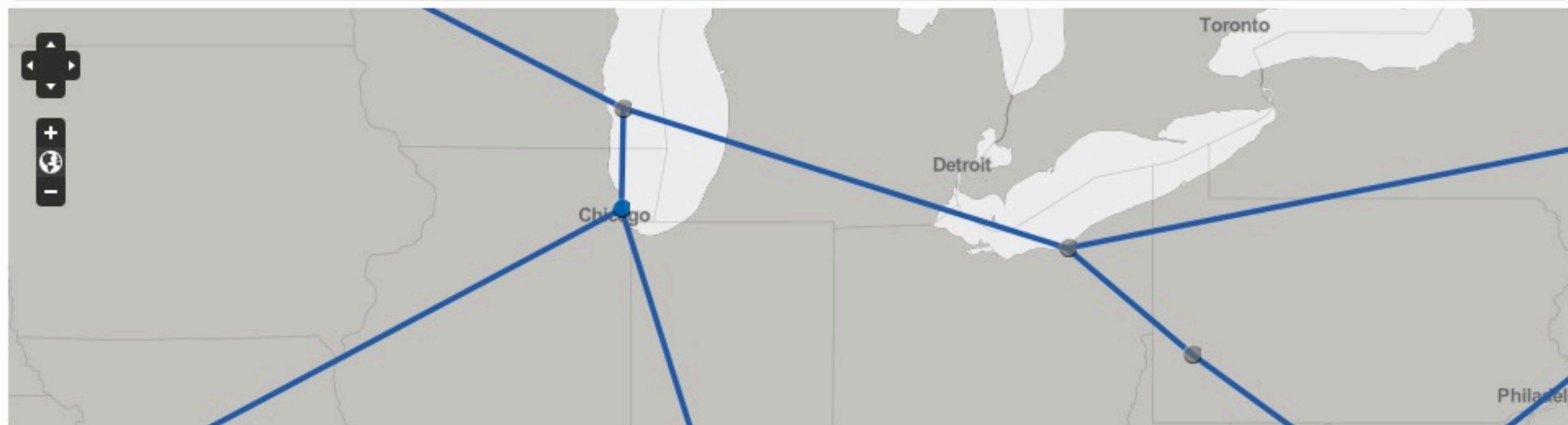
- ◎ Policy has been set to mimic the existing port based policies in place.
 - workgroups given access to untagged,1-4095
- ◎ Access to AL3S and TR-CPS ports limited to already configured VLAN tags
 - based on what VLANs you have today
 - for future connections coordinate with NOC as you discuss peering details.

[Active VLANS](#)
[Network Status](#)
[Available Resources](#)
[Users](#)
[Actions](#)
[ACL](#)

Available Resources

Node	Interface	Description	VLAN Range	Owned
sdn-sw.chic.net.internet2.edu	e1/2	I2-S08251 Indiana UGigapop	untagged,1-4095	Yes
sdn-sw.chic.net.internet2.edu	e3/1	rtr.chic, et-10/0/0	101-103,211,2000	No

Indiana has access to full range of Tags on their port



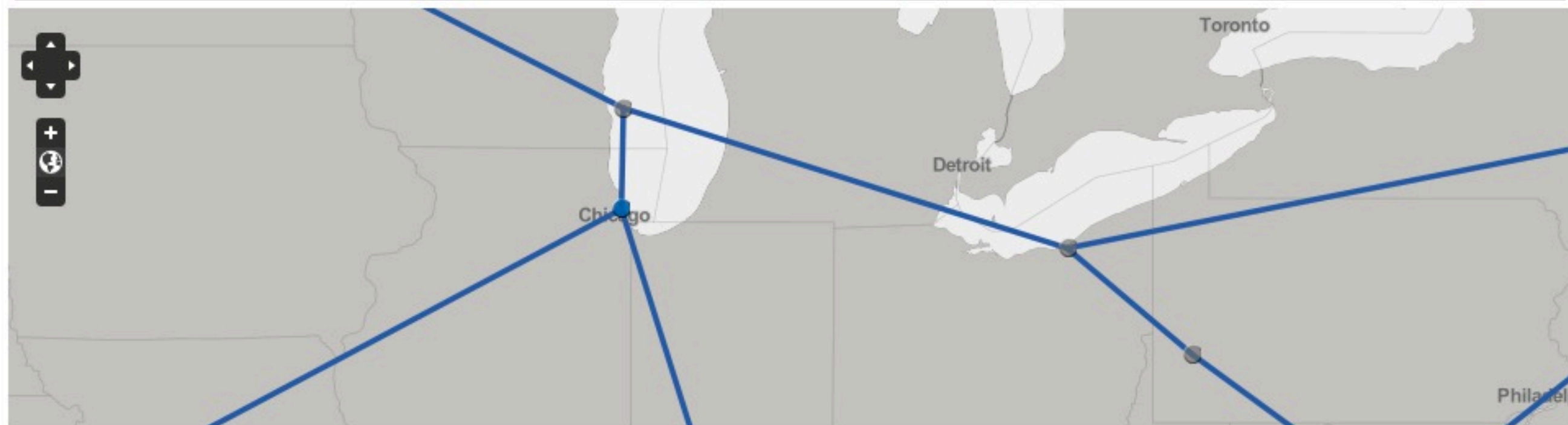
[Active VLANs](#)
[Network Status](#)
[Available Resources](#)
[Users](#)
[Actions](#)
[ACL](#)

Available Resources

Node	Interface	Description	VLAN Range	Owned
sdn-sw.chic.net.internet2.edu	e1/2	I2-S08251 Indiana UGigapop	untagged,1-4095	Yes
sdn-sw.chic.net.internet2.edu	e3/1	rtr.chic, et-10/0/0	101-103,211,2000	No

Indiana has limited access on the AL3S router port

Range based on active VLANs at time of migration



Workgroups that support Overlays

- ◎ Groups that bring together multiple ports and are largely separate from AI3S
- ◎ Policy has been set to mimic the existing port based policies in place.
 - workgroups given access to untagged,1-4095
- ◎ XSEDE as example

[Active VLANs](#) [Network Status](#) [Available Resources](#) [Users](#) [Actions](#) [ACL](#)

Available Resources

Node	Interface	Description	VLAN Range	Owned
sdn-sw.chic.net.internet2.edu	e1/2	I2-S08251 Indiana UGigapop	untagged,1-4095	No
sdn-sw.chic.net.internet2.edu	e15/2	sdn-srv.chic, em2	untagged,1-4095	No
sdn-sw.clev.net.internet2.edu	e15/5	I2-S08999 XSEDE, PSC/3ROX	untagged,1-4095	Yes
sdn-sw.denv.net.internet2.edu	e15/3	I2-S09005 XSEDE, NCAR	untagged,1-4095	Yes
sdn-sw.denv.net.internet2.edu	e15/4	I2-S09003 XSEDE, TACC	untagged,1-4095	Yes
sdn-sw.losa.net.internet2.edu	e15/3	sdn-srv.losa, em2	untagged,1-4095	No
sdn-sw.losa.net.internet2.edu	e15/6	e15/6	untagged,1-4095	Yes
sdn-sw.star.net.internet2.edu	e15/1	e15/1	untagged,1-4095	Yes
sdn-sw.star.net.internet2.edu	e15/4	e15/4	untagged,1-4095	Yes
sdn-sw.star.net.internet2.edu	e15/5	I2-S09001 XSEDE, EC	untagged,1-4095	Yes

All ports have full
range access

Range based on
policy defined by the
owner

Request a new Workgroup?

- ◎ Should be less frequent now that we have visibility into foreign circuits
- ◎ When you have a unique set of people that need to have the ability to edit or add new VLANs
 - research vs production VLANs
 - joint management of virtual overlay infrastructure

Summary

- Better Email notification
- ability to see foreign VLANs on your ports
- ability to define who can access your ports and on what VLAN tag.

For more information

◎ Try out your new policy on a demo instance of OESS

- <https://al2s-demo.net.internet2.edu/oess/>

◎ Online documentation

- <http://globalnoc.iu.edu/sdn/oess.html>

